

Hydrogen Sulfide Drilling Operations Plan

**East Lusk 15 Federal Com No. 1**

Cimarex Energy Co. of Colorado

Unit P, Section 15

T19S-R32E, Lea County, NM

- 1 All Company and Contract personnel admitted on location must be trained by a qualified H<sub>2</sub>S safety instructor to the following:
  - A. Characteristics of H<sub>2</sub>S
  - B. Physical effects and hazards
  - C. Proper use of safety equipment and life support systems.
  - D. Principle and operation of H<sub>2</sub>S detectors, warning system and briefing areas.
  - E. Evacuation procedure, routes and first aid.
  - F. Proper use of 30 minute pressure demand air pack.
- 2 H<sub>2</sub>S Detection and Alarm Systems:
  - A. H<sub>2</sub>S detectors and audio alarm system to be located at bell nipple, end of flow line (mud pit) and on derrick floor or doghouse.
- 3 Windsock and/or wind streamers:
  - A. Windsock at mudpit area should be high enough to be visible.
  - B. Windsock at briefing area should be high enough to be visible.
- 4 Condition Flags and Signs:
  - A. Warning sign on access road to location.
  - B. Flags to be displayed on sign at entrance to location. Green flag indicates normal safe condition. Yellow flag indicates potential pressure and danger. Red flag indicates danger (H<sub>2</sub>S present in dangerous concentration). Only emergency personnel admitted to location.
- 5 Well control equipment:
  - A. See exhibit "E"
- 6 Communication:
  - A. While working under masks chalkboards will be used for communication.
  - B. Hand signals will be used where chalk board is inappropriate.
  - C. Two way radio will be used to communicate off location in case of emergency help is required. In most cases cellular telephones will be available at most drilling foreman's trailer or living quarters.
- 7 Drillstem Testing:

No DSTs or cores are planned at this time.
- 8 Drilling contractor supervisor will be required to be familiar with the effects H<sub>2</sub>S has on tubular goods and other mechanical equipment.
- 9 If H<sub>2</sub>S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H<sub>2</sub>S scavengers if necessary.

H<sub>2</sub>S Contingency Plan  
**East Lusk 15 Federal Com No. 1**  
Cimarex Energy Co. of Colorado  
Unit P, Section 15  
T19S-R32E, Lea County, NM

**Emergency Procedures**

In the event of a release of gas containing H<sub>2</sub>S, the first responder(s) must:

- ★ Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- ★ Evacuate any public places encompassed by the 100 ppm ROE.
- ★ Be equipped with H<sub>2</sub>S monitors and air packs in order to control the release.
- ★ Use the "buddy system" to ensure no injuries occur during the response.
- ★ Take precautions to avoid personal injury during this operation.
- ★ Contact operator and/or local officials to aid in operation. See list of phone numbers attached.
- ★ Have received training in the:
  - ◆ Detection of H<sub>2</sub>S, and
  - ◆ Measures for protection against the gas,
  - ◆ Equipment used for protection and emergency response.

**Ignition of Gas Source**

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO<sub>2</sub>). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally, the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas.

**Characteristics of H<sub>2</sub>S and SO<sub>2</sub>**

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H <sub>2</sub> S	1.189 Air=1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO <sub>2</sub>	2.21 Air=1	2 ppm	N/A	1000 ppm

**Contacting Authorities**

Cimarex Energy Co. of Colorado's personnel must liaise with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available including directions to site. The following call list of essential and potential responders has been prepared for use during a release. Cimarex Energy Co. of Colorado's response must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMER).

H<sub>2</sub>S Contingency Plan Emergency Contacts  
**East Lusk 15 Federal Com No. 1**  
 Cimarex Energy Co. of Colorado  
 Unit P, Section 15  
 T19S-R32E, Lea County, NM

<b><u>Company Office</u></b>			
Cimarex Energy Co. of Colorado		800-969-4789	
Co. Office and After-Hours Menu			
<b><u>Key Personnel</u></b>			
<b>Name</b>	<b>Title</b>	<b>Office</b>	<b>Mobile</b>
Doug Park	Drilling Manager	432-620-1934	972-333-1407
Dee Smith	Drilling Super	432-620-1933	972-882-1010
Jim Evans	Drilling Super	432-620-1929	972-465-0564
Roy Shirley	Field Super		432-634-2136
<b><u>Artesia</u></b>			
Ambulance		911	
State Police		575-746-2703	
City Police		575-746-2703	
Sheriff's Office		575-746-9888	
<b>Fire Department</b>		<b>575-746-2701</b>	
Local Emergency Planning Committee		575-746-2122	
New Mexico Oil Conservation Division		575-748-1283	
<b><u>Carlsbad</u></b>			
Ambulance		911	
State Police		575-885-3137	
City Police		575-885-2111	
Sheriff's Office		575-887-7551	
<b>Fire Department</b>		<b>575-887-3798</b>	
Local Emergency Planning Committee		575-887-6544	
US Bureau of Land Management		575-887-6544	
<b><u>Santa Fe</u></b>			
New Mexico Emergency Response Commission (Santa Fe)		505-476-9600	
New Mexico Emergency Response Commission (Santa Fe) 24 Hrs		505-827-9126	
New Mexico State Emergency Operations Center		505-476-9635	
<b><u>National</u></b>			
National Emergency Response Center (Washington, D.C.)		800-424-8802	
<b><u>Medical</u></b>			
Flight for Life - 4000 24th St.; Lubbock, TX		806-743-9911	
Aerocare - R3, Box 49F; Lubbock, TX		806-747-8923	
Med Flight Air Amb - 2301 Yale Blvd S.E., #D3; Albuquerque, NM		505-842-4433	
SB Air Med Service - 2505 Clark Carr Loop S.E.; Albuquerque, NM		505-842-4949	
<b><u>Other</u></b>			
Boots & Coots IWC		800-256-9688	or 281-931-8884
Cudd Pressure Control		432-699-0139	or 432-563-3356
Halliburton		575-746-2757	
B.J. Services		575-746-3569	

Surface Use Plan  
**East Lusk 15 Federal Com No. 1**  
Cimarex Energy Co. of Colorado  
Unit P, Section 15  
T19S-R32E, Lea County, NM

1. Existing Roads: Area maps, Exhibit "A" shows the proposed well site as staked. Exhibit "B" is a reproduction of Eddy Co. General Highway Map. Exhibit "C" is a reproduction of a USGS Topographic Map, and Exhibit "C-1" is a well site layout map, showing proposed road to location.
  - A. The maximum width of the driving surface will be 15.' The road will be crowned and ditched with a 2% slope from the tip of the crown to the edge of the driving surface. The ditches will be 1' deep with 3:1 slopes. The driving surface will be made of 6" rolled and compacted caliche.
  - B. From the junction of Lusk and Maljamar, go North on Maljamar for 0.4 miles to lease road. On lease road, go East 1.7 miles to proposed location.
2. Planned Access Roads: 1269.9' of proposed newly constructed access road (on-lease).
3. Location of Existing Wells in a One-Mile Radius - Exhibit A
  - A. Water wells - None known
  - B. Disposal wells - None known
  - C. Drilling wells - None known
  - D. Producing wells - As shown on Exhibits "A" and "A-1"
  - E. Abandoned wells - As shown on Exhibits "A" and "A-1"
4. Location of Proposed Production Facilities:

If on completion this well is a producer, a tank battery will be used and the necessary production equipment will be installed at the wellsite. See production facilities layout diagram. Any changes to the facilities or off-site facilities will be accompanied by a Sundry Notice.
5. Location and Type of Water Supply:

Water will be purchased locally from a commercial source and trucked over the access roads.
6. Source of Construction Material:

If possible, native caliche will be obtained from the excavation of drill site. Topsoil will be pushed back from the drill site and existing caliche will be ripped and compacted. Then topsoil will be stockpiled on location as depicted on Exhibit "D" (rig layout). If additional material is needed, it will be purchased from a BLM-approved pit as near as possible to the well location.
7. Methods of Handling Waste Material:
  - A. Drill cuttings will be separated by a series of solids removal equipment and stored in steel containment pits and then hauled to a state-approved disposal facility.
  - B. All trash, junk and other waste material will be contained in trash cages or bins to prevent scattering. When the job is completed all contents will be removed and disposed of in an approved sanitary land fill.
  - C. Salts remaining after completion of well will be picked up by supplier including broken sacks.
  - D. Sewage from living quarters will drain into holding tanks and be cleaned out periodically and hauled to a waste disposal facility. A Porta-John will be provided for the rig crews. This equipment will be properly maintained during the drilling operations and removed upon completion of the well.
  - E. Drilling fluids will be contained in steel pits in a closed circulating system. Fluids will be cleaned and reused. Water produced during testing will be contained in the steel pits and disposed of at a state approved disposal facility. Any oil or condensate produced will be stored in test tanks until sold and hauled from the site.

Surface Use Plan  
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T19S-R32E, Lea County, NM

8. Ancillary Facilities:

- A. No camps or airstrips to be constructed.

9. Well Site Layout:

- A. Exhibit "D" shows location and rig layout.
- C. Mud pits in the closed circulating system will be steel pits and the cuttings will be stored in steel containment pits.
- D. Cuttings will be stored in steel pits until they are hauled to a state-approved disposal facility.
- E. If the well is a producer, those areas of the location not essential to production facilities will be reclaimed and seeded per BLM requirements.

10. Plans for Restoration of Surface:

Rehabilitation of the location will start in a timely manner after all drilling operations cease. The type of reclamation will depend on whether the well is a producer or a dry hole.

Drainage systems, if any, will be reshaped to the original configuration with provisions made to alleviate erosion. These may need to be modified in certain circumstances to prevent inundation of the location's pad and surface facilities. After the area has been shaped and contoured, topsoil from the spoil pile will be placed over the disturbed area to the extent possible. Revegetation procedures will comply with BLM standards.

If the well is a dry hole, the pad and road area will be recountoured to match the existing terrain. Topsoil will be spread to the extent possible. Revegetation will comply with BLM standards.

Should the well be a producer, those areas of the location not essential to production facilities and operations will be reclaimed and seeded per BLM requirements. Please see Production Facilities Layout Diagram, exhibit D-1.

11. Other Information

- A. Topography consists of a sloping plane with loose tan sands. Vegetation is mainly yucca, mesquite and shin oak.
- B. The wellsite is on surface owned by Department of the Interior, Bureau of Land Management. The land is used mainly for farming, cattle ranching, recreational use, and oil and gas production.
- C. In lieu of an archaeological survey report, Cimarex will be submitting an MOA application for this well pad and access road since they are within the MOA boundary.
- D. There are no known dwellings within 1½ miles of this location.

Operator Certification Statement  
East Lusk 15 Federal Com No. 1  
Cimarex Energy Co. of Colorado  
Unit P, Section 15  
T19S-R32E, Lea County, NM

Operator's Representative

Cimarex Energy Co. of Colorado  
600 N. Marienfeld St., Ste. 600  
Midland, TX 79701  
Office Phone: (432) 571-7800  
Zeno Farris

**CERTIFICATION:** I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

Executed this 11th day of August, 2010

NAME: Zeno Farris  
Zeno Farris

TITLE: Manager Operations Administration

ADDRESS: 600 N. Marienfeld St., Ste. 600  
Midland, TX 79701

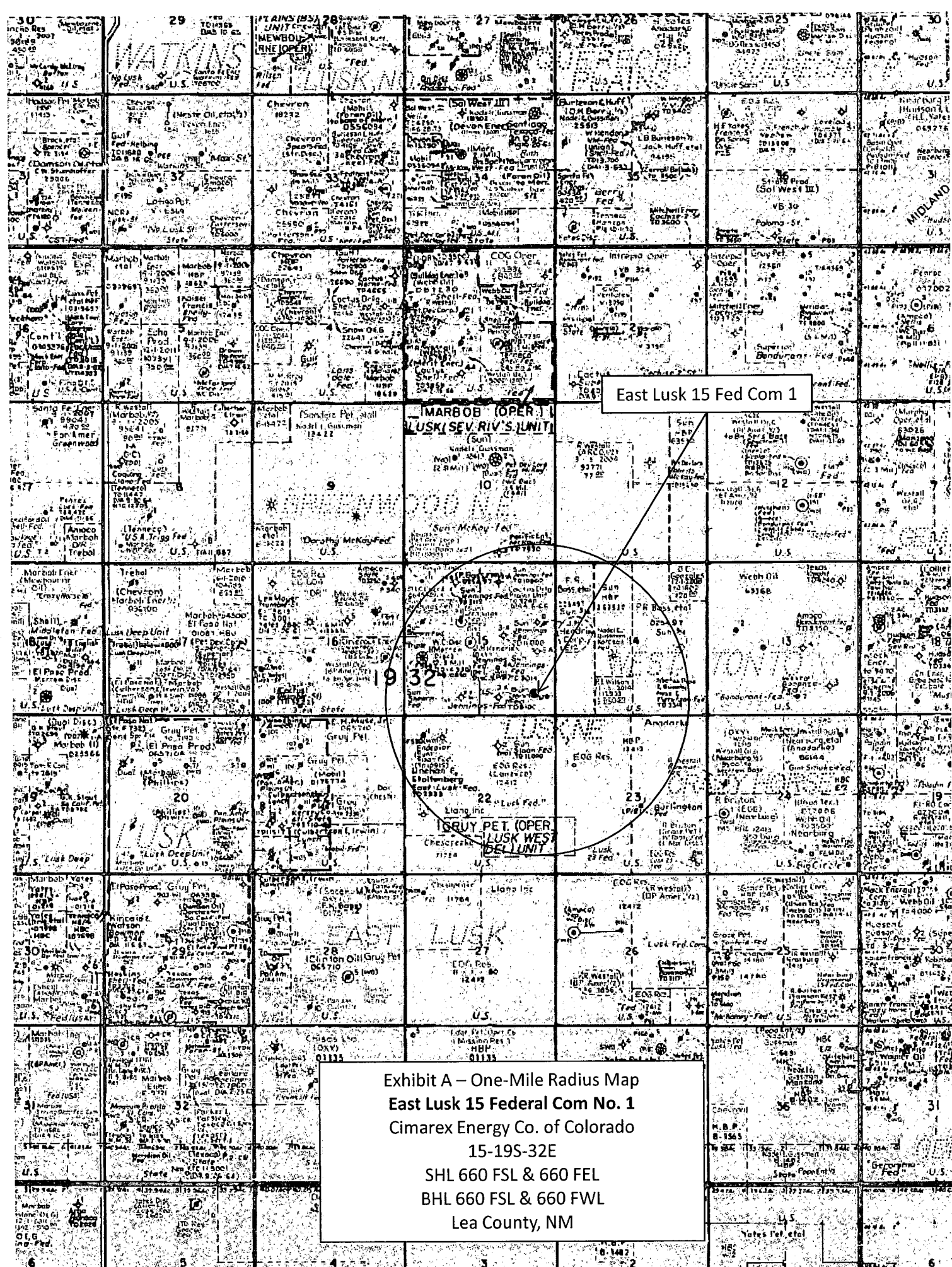
TELEPHONE: (432) 620-1938

EMAIL: zfarris@cimarex.com

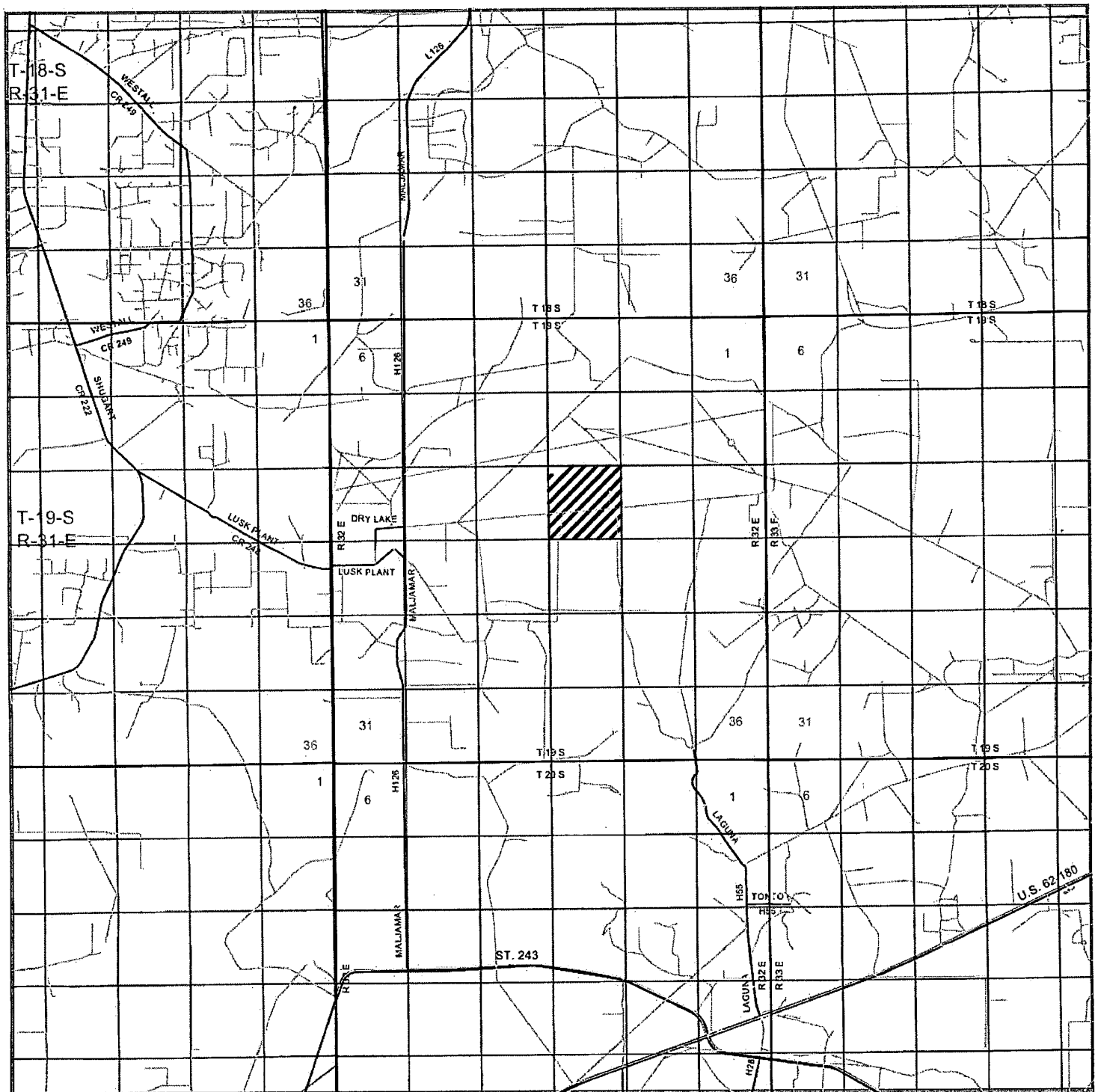
Field Representative: Same as above

Exhibit A-1  
Wells in One-Mile Radius  
East Lusk 15 Federal Com No. 1  
15-19S-32E  
Lea County, NM

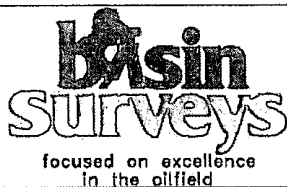
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3002537060	KORCZAK FEDERAL 001	Active	K	19.0S	32E	14	K	1980	S	1980	W	NADEL AND GUSSMAN PERMIAN, LLC	G	LUSK;MORROW, EAST (GAS)
3002529671	HESS & PETERSON FEDE 001	Plugged	I	19.0S	32E	14	I	2310	S	990	E	METEX PIPE & SUPPLY	O	
3002530677	MCKAY FEDERAL 003	Plugged	O	19.0S	32E	10	O	330	S	1980	E	PACIFIC ENTERPRISES	O	
3002527189	JENNINGS B" FEDERAL 003 "	Plugged	F	19.0S	32E	15	F	1880	N	1980	W	FLOYD OPERATING CO	O	
3002521734	PLAINS UNIT 008	Plugged	H	19.0S	32E	15	H	1980	N	660	E	CACTUS DRILLING CORP OF TEXAS	O	
3002524836	JENNINGS FEDERAL 001	Active	F	19.0S	32E	15	F	1980	N	1980	W	RAYA ENERGY CORP.	O	LUSK;BONE SPRING, EAST
3002523972	SHEARN FEDERAL 001	Plugged	L	19.0S	32E	15	L	1980	S	660	W	SUN OIL CO	O	
3002525384	JENNINGS A FEDERAL 001	Plugged	B	19.0S	32E	15	B	660	N	1980	E	SUN OIL CO	O	
3002528441	JENNINGS A FEDERAL 005	Plugged	I	19.0S	32E	15	I	2230	S	660	E	SUN EXPLORATION & PRODUCTION CC	O	
3002527940	JENNINGS A FEDERAL 004	Active	J	19.0S	32E	15	J	1650	S	1980	E	JOHN H HENDRIX CORP	O	LUSK;BONE SPRING, EAST
3002527257	JENNINGS A FEDERAL 002	Plugged	O	19.0S	32E	15	O	660	S	1980	E	SUN OIL CO	O	
3002527264	SHEARN FEDERAL 002	Plugged	E	19.0S	32E	15	E	1980	N	660	W	SUN EXPLORATION & PRODUCTION CC	O	
3002527188	JENNINGS B FEDERAL 002	Active	N	19.0S	32E	15	N	660	S	1980	E	RAYA ENERGY CORP.	S	
3002527662	JENNINGS A FEDERAL 003	Plugged	G	19.0S	32E	15	G	2500	N	1880	E	SUN OIL CO	O	
3002526916	JENNINGS B" FEDERAL 001 "	Plugged	K	19.0S	32E	15	K	2440	S	2290	W	FLOYD OPERATING CO	O	
3002526728	SHEARN FEDERAL 003	TA	D	19.0S	32E	15	D	660	N	660	W	RAYA ENERGY CORP.	O	LUSK;YATES, NORTHEAST
3002527301	JENNINGS B" FEDERAL 004 "	Plugged	C	19.0S	32E	15	C	660	N	1980	W	FLOYD OPERATING CO	O	
3002524787	LUSK 16 STATE 004	Active	I	19.0S	32E	16	I	2030	S	660	E	TRITEX RESOURCES, L.L.C.	S	
3002525893	STATE DR 002	Active	H	19.0S	32E	16	H	1650	N	990	E	CIMAREX ENERGY CO. OF COLORADO	O	LUSK;YATES, NORTHEAST
3002500918	EAST LUSK 001	Plugged	L	19.0S	32E	22	L	1980	S	660	W	LINEHAN AND STOLTEN	O	
3002528373	SLOAN FEDERAL 002	Plugged	B	19.0S	32E	22	B	990	N	1980	E	LANEXCO INC	O	
3002535590	LUSK 22 FEDERAL 001	Active	C	19.0S	32E	22	C	715	N	1330	W	EOG RESOURCES INC	G	LUSK;DELAWARE, NORTH
3002525136	SLOAN FEDERAL 001	Plugged	D	19.0S	32E	22	D	660	N	660	W	ENDEAVOR ENERGY RESOURCES, LP	O	
3002530772	FEDERAL 23 001	Plugged	J	19.0S	32E	23	J	2310	S	2310	E	BURLINGTON RESOURCES OIL ; GAS CC	O	
3002535785	LUSK 23 FEDERAL 001	Unknown	E	19.0S	32E	23	E	1651	N	679	W	EOG RESOURCES INC	G	







**EAST LUSK "15" FEDERAL COM #1**  
 Located 660' FSL and 660' FEL  
 Section 15, Township 19 South, Range 32 East,  
 N.M.P.M., Lea County, New Mexico.



P.O. Box 1786  
 1120 N. West County Rd.  
 Hobbs, New Mexico 88241  
 (575) 393-7316 - Office  
 (575) 392-2206 - Fax  
 basinsurveys.com

W.O. Number: JMS 23146

Survey Date: 07-21-2010

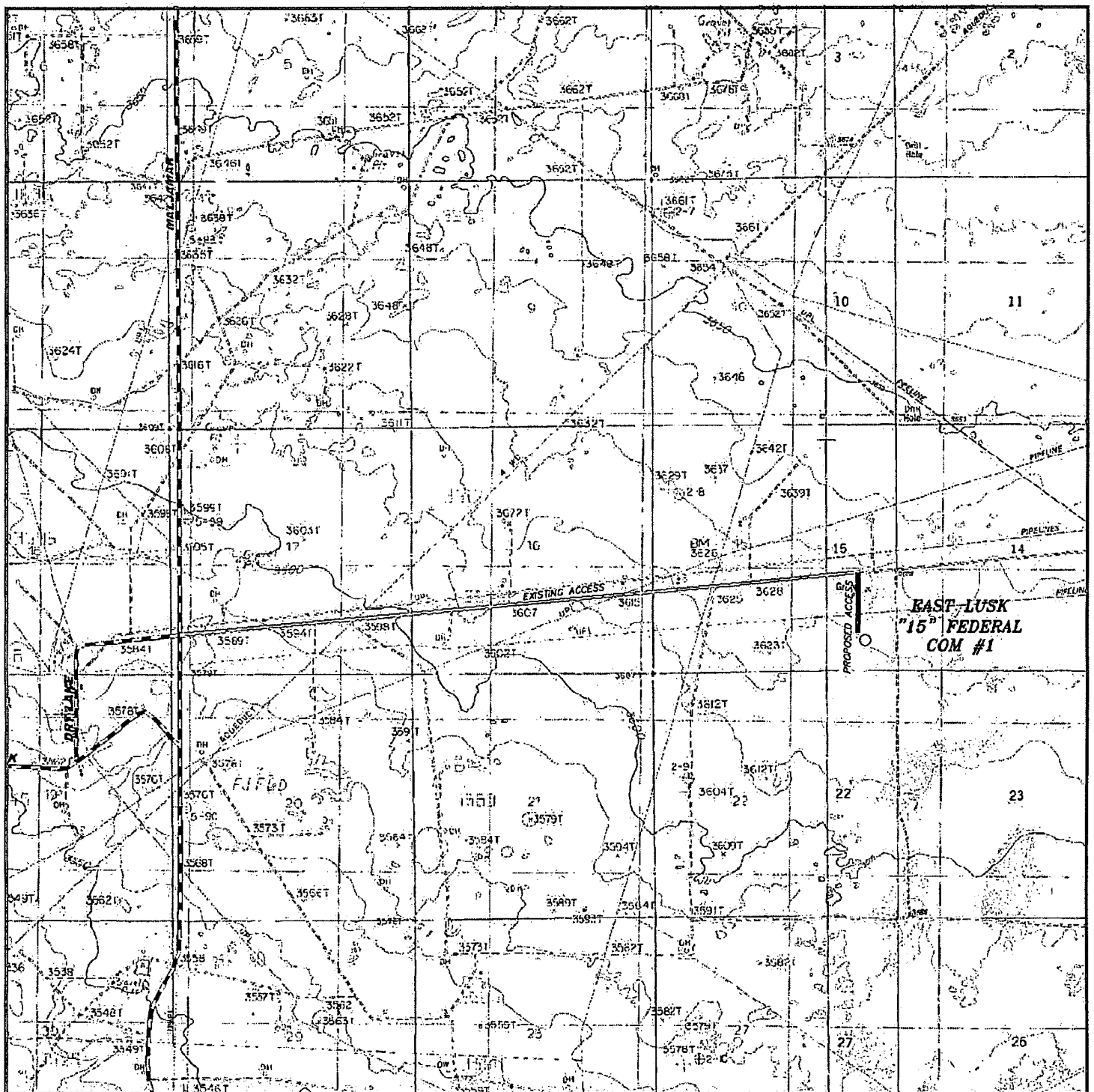
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Date: 07-26-2010



**CIMAREX  
 ENERGY CO.  
 OF COLORADO**

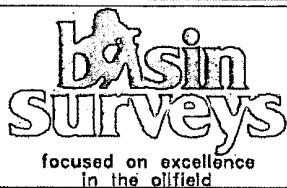
**Exhibit B**



# **EAST LUSK "15" FEDERAL COM #1**

Located 660' FSL and 660' FEL

Section 15, Township 19 South, Range 32 East,  
N.M.P.M., Lea County, New Mexico.



P.O. Box 1786  
1120 N. West County Rd.  
Hobbs, New Mexico 88241  
(575) 393-7316 - Office  
(575) 392-2206 - Fax  
basinsurveys.com

W.O. Number: JMS 23146

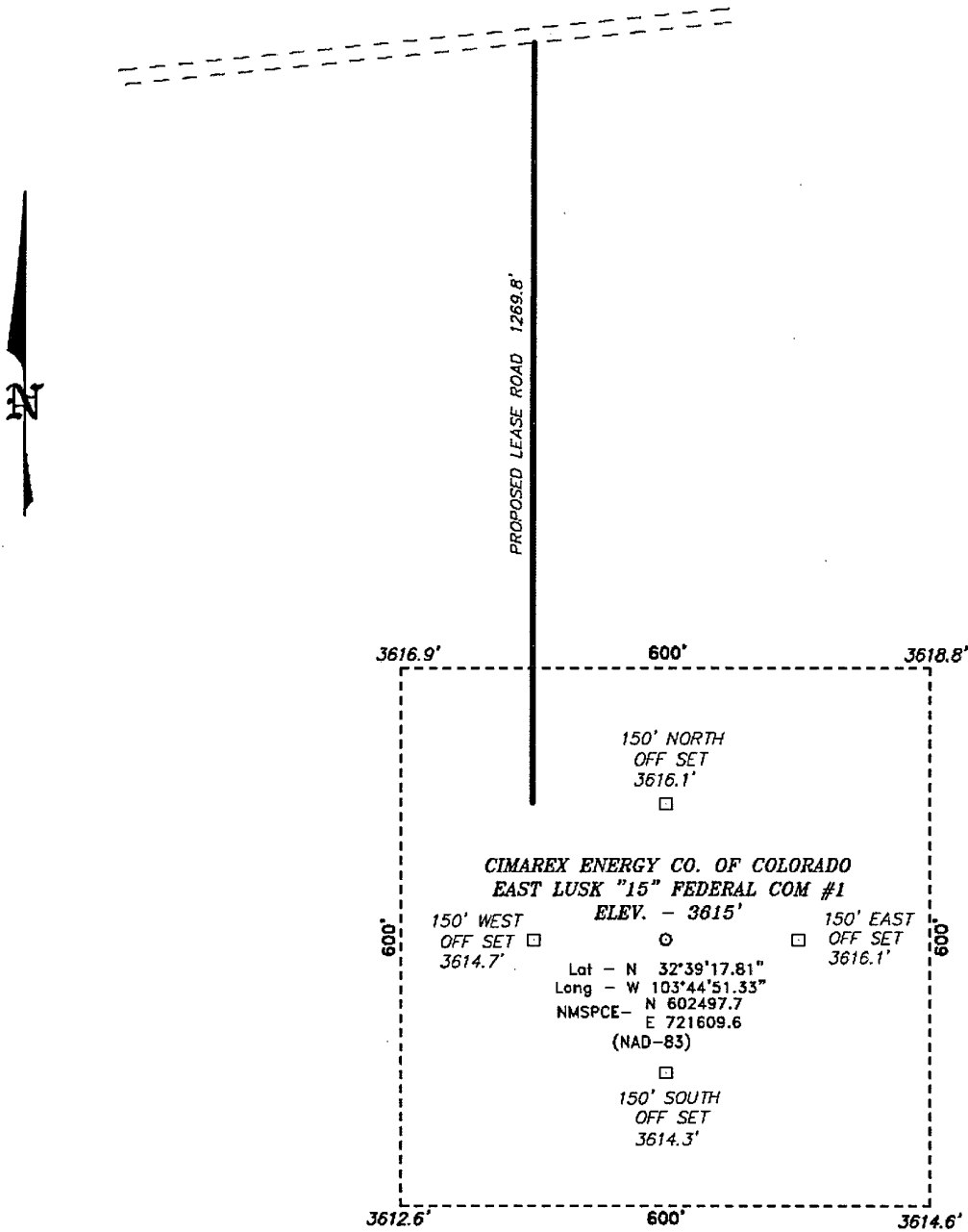
Survey Date: 07-21-2010

Scale: 1" = 3000'

Date: 07-26-2010

**CIMAREX  
ENERGY CO.  
OF COLORADO**

SECTION 15, TOWNSHIP 19 SOUTH, RANGE 32 EAST, N.M.P.M.,  
LEA COUNTY, NEW MEXICO.



200 0 200 400 FEET  
SCALE: 1" = 200'

Directions to Location:

FROM THE JUNCTION OF LUSK AND MALJAMAR, GO  
NORTH ON MALJAMAR FOR 0.4 MILES TO LEASE  
ROAD, ON LEASE ROAD OF EAST 1.7 MILES TO  
PROPOSED LOCATION.

**BASIN SURVEYS** P.O. BOX 1786-HOBBS, NEW MEXICO

W.O. Number: 23146 Drawn By: J. SMALL

Date: 07-26-2010 Disk: JMS 23146

**CIMAREX ENERGY CO. OF COLORADO**

REF: EAST LUSK "15" FEDERAL COM #1 / WELL PAD TOPO

THE EAST LUSK "15" FEDERAL COM #1 LOCATED 660'

FROM THE SOUTH LINE AND 660' FROM THE EAST LINE OF

SECTION 15, TOWNSHIP 19 SOUTH, RANGE 32 EAST,

N.M.P.M., LEA COUNTY, NEW MEXICO.

Survey Date: 07-21-2010 Sheet 1 of 1 Sheets